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Photographs of Comet d 1907 (*Daniel*). By Dr. Max Wolf.

(Plate 6.)

Comet Daniel has been photographed at the Observatory, Königstuhl, Heidelberg, on the following nights, with the following instruments:—

Date.	1¼-in.	6-in. (*a*)	6-in. (*b*)	16-in. (*a*)	16-in. (*b*)	28-in.	Total Plates.
1907							
July 21	...	...	...	1	1	...	2
22	1	1	1	1	1	...	5
Aug. 2	...	...	...	...	...	2	2
4	1	...	...	1	1	4	7
7	1	...	...	1	1	2	5
8	...	...	...	1	1	3	5
9	...	...	...	1	1	4	6
11	...	...	...	1	1	2	4
14	1	...	...	...	...	2	3
27	...	...	...	1	1	...	2
10 *n*.							41

Six of these plates were taken by Mr. Scheifele, 12 by Dr. Kopff, and 23 by myself; 9 are stereos.

Besides these photographs I have made six drawings with the 28-in. reflector, viz. on August 4, 7, 8, 9, 11, and 14.

The most striking result appears to me the difference between the visual and the photograph appearances. All the drawings show a minimum of luminous radiation in or around the axis of the tail in the region turned away from the Sun. All the photographs show the brightest tails near the axis, exactly in the parts where visually there was a minimum of brightness. This very curious difference, which was remarked several years before in other comets photographed here, seems to be placed beyond doubt by the photographs taken with the reflector.

Besides this, it is very interesting, and perhaps in opposition with accepted theories, that the short arms of the tails furthest outside the axis are nearly all curved.

The following eight specimens are presented to the Society:—

				h	m		m
1.	Plate D144,	Reflector,	1907 Aug. 2;	14	44·6	Königstuhl M.T., exposure	10
2.	,, D147,	,,	,, ,, 4;	14	35·1	,, ,, ,,	15
3.	,, D152,	,,	,, ,, 7;	14	52·1	,, ,, ,,	15
4.	,, D155,	,,	,, ,, 8;	14	42·2	,, ,, ,,	25
5.	,, D161,	,,	,, ,, 9;	14	59·6	,, ,, ,,	12
6.	,, D167,	,,	,, ,, 11;	15	5·2	,, ,, ,,	15
7.	,, D173,	,,	,, ,, 14;	15	8·2	,, ,, ,,	12
8.	,, A4850,	1¼-in. lens,	,, ,, 14;	15	0·2	,, ,, ,,	20

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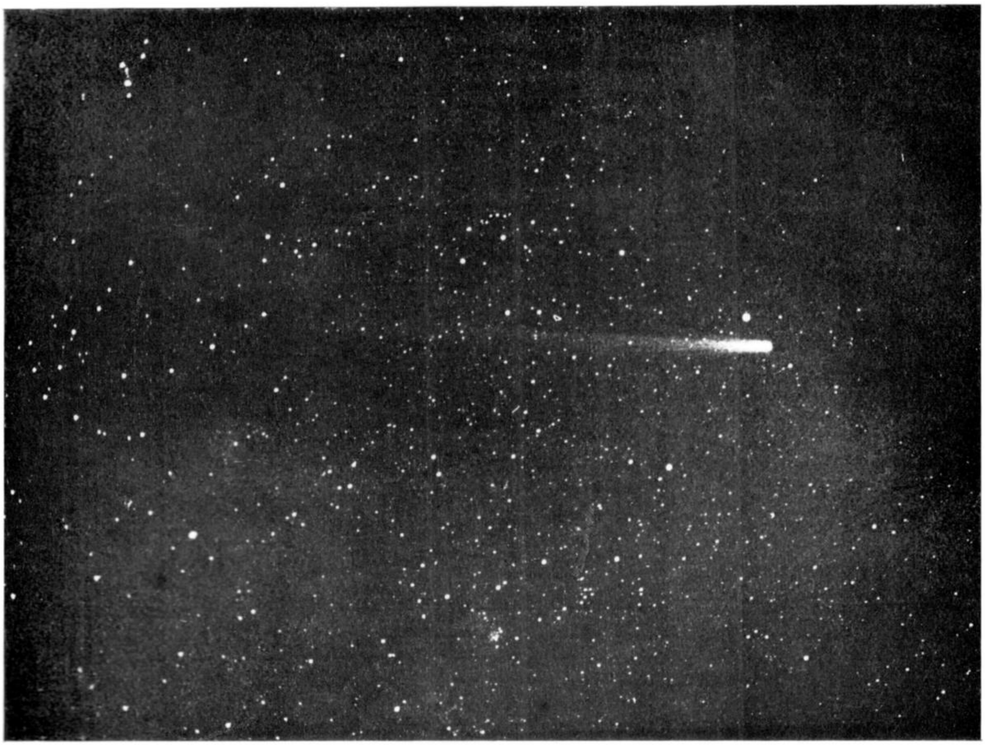
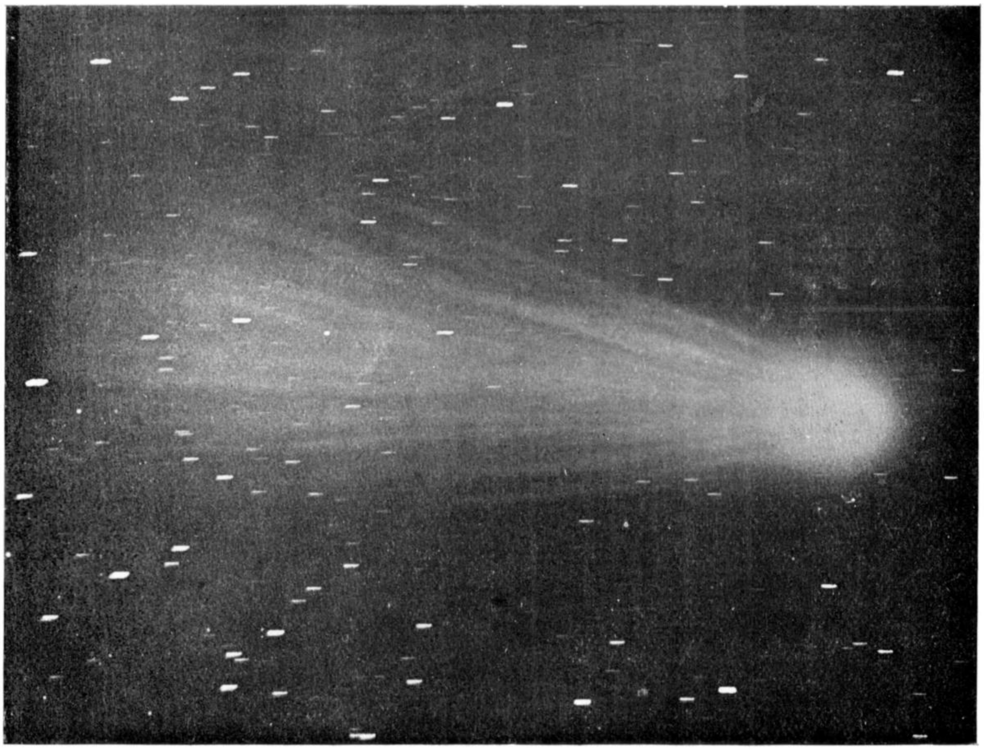


1907 AUG 14 D. 15 H. 0·2 M. 1¼-IN. LENS.



1907 AUG. 14 D. 15 H. 8·2 M. 28-IN. REFLECTOR.

COMET *d* 1907 (DANIEL). MAX WOLF, HEIDELBERG.

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The lantern slides are a little enlarged from the original negatives. On the slides from the reflector-plates 1 degree equals 86 mm., and on the slide of the 1¼-in. lens 1 degree equals 4 mm.*

It is interesting to compare photographs 7 and 8, which were taken at the same time, but with very different optical means—28-in. and 1¼-in.

The tail on No. 8 is somewhat over 12 degrees long, while the small field of the reflector gives the head and its neighbourhood only. The bright star near the head of the comet on No. 8 is γ Geminorum.

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* In the reproduction on Plate 6 one degree on the reflector plate = 79 mm., and one degree on the 1¼-in. lens plate = 3·7 mm.

Astrophysical Observatory,
Heidelberg (*Königstuhl*),
1907 *December* 10.

On an improved method of illuminating the field in a Transit Instrument, and its effect on the discordance in reversed positions of the instrument. By Sir W. H. M. Christie, K.C.B., F.R.S., and H. A. H. Christie, B.A. (Plates 7, 8.)

It is known that with a reversible transit instrument observations made in the two positions of the instrument generally show discordant results for clock error for stars reduced with the same collimation error for the two positions. This discordance has been attributed to what is called lateral flexure, and a correction depending on cos Z.D. has sometimes been applied, but at Greenwich we never felt satisfied that there was any real ground for this assumption. We have suspected sometimes that it was due to looseness in the mounting of the object-glass, and in the Paris-Greenwich longitude determination of 1888 this was found to be the case with both the portable transits. But though this was remedied by an improvement in the mounting of the object-glass, this puzzling discordance still remained in subsequent longitude determinations. Whilst there is in each series of observations a general tendency in one direction, there are considerable variations in the discordance between the mean clock errors for each night in the two positions of the instrument, as will be seen from Tables I., II., III., IV., V., VII., and VIII.

Mr. Hollis, on thinking over the matter in connection with the observations for longitude of Killorglin in 1898 and of Paris in 1902, had come to the conclusion that to obtain the correct clock-error from the mean of results in reversed positions it was necessary to keep the focus of the eyepiece absolutely fixed, and that to secure this it was expedient to keep the diagonal eye-tube which was used for the observations, and was liable to sag, rigidly attached to the tube of the instrument. In the Paris longitude